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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,724	09/30/2003	C. Brian Atkins	200308888-1	6372

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HEWLETT PACKARD COMPANY  
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INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
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VU, KIEU D

ART UNIT	PAPER NUMBER
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2175

NOTIFICATION DATE	DELIVERY MODE
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09/16/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/675,724	<b>Applicant(s)</b> ATKINS, C. BRIAN	
	<b>Examiner</b> KIEU D. VU	<b>Art Unit</b> 2175	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

1. This Office Action is responsive to the Amendment filed on 11/29/07.
2. Claims 1-21 are pending.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-2, 4, 6-7, 13-14, 17-18, and 20-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent Claim 1 recites the limitation "the space" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claims 2, 4, and 6-7 depend on claim 1 and are rejected for similar reason.

Claim 13 recites the limitation "said locating" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 13 recites the limitation "said defining and locating" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "said defining and locating" in lines 2-3 (both occurrences). There is insufficient antecedent basis for this limitation in the claim.

Art Unit: 2175

Regarding claim 17, it is not clear that “said determining” (lines 1-2) refers to “determining” in line 12 of claim 15 or “determining” in line 4 of claim 16. This renders the claim vague and indefinite.

Regarding claim 18, it is not clear that “said determining” (lines 1-2) refers to “determining” in line 12 of claim 15 or “determining” in line 4 of claim 16. This renders the claim vague and indefinite.

Claim 20 recites the limitation "the determined scores" in the last line. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 recites the limitation "said characterizing and manipulating" in lines 2-3 (both occurrences). There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Goldenberg (“Automatic Layout of Variable-content Print Data”, August 2002).

Regarding claim 3, Goldenberg teaches a method for locating objects by assembling a layout of objects within a space (layout print objects in a space, section 3 “The program”, page 11), comprising: generating a tree structure

Art Unit: 2175

having at least one node and at least one leaf (slicing tree in Fig. 2, section 3.2.1), where each leaf corresponds to one object (print object); characterizing a bounding box for each node in the tree structure (layout space reserved for a given tree), wherein a bounding box for each node includes all objects in any subtree below the node; and assigning regions within the space for each node in the tree structure in accordance with the bounding box associated with the node (assigning layout regions for each objects) (Fig. 14, page 26). Goldenberg further teaches adjusting relative area proportions of at least one child of each node and all children thereof so that predetermined dimensions of the children are equal, performed prior to said establishing (section 6.2.3 “Allowing relaxation of the aspect ratio constraints”) (Goldenberg teaches at section 6.2.3 that the aspect ratio of layout can be adjusted. Goldenberg teaches at section 7.1 the capability of matching widths and heights of objects).

Regarding claim 5, Goldenberg teaches determining right and left child relative area proportions and aspect ratios (section 6.2 “Controlling the aspect ratio”, section 6.2.2 “Incorporating the aspect ration into the area calculation”); determining a factor for the node based on left and right child relative area proportions and aspect ratios; and multiplying relative area proportions for one child and all its children by the factor (section 6.3 “Grouping items together”).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2175

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2, 4, and 6-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldenberg ("Automatic Layout of Variable-content Print Data", August 2002) and Geigel et al ("Geigel", US 2002/0122067 A1).

Regarding claim 1, Goldenberg teaches a method for producing a layout of objects on a page (layout print objects in a space, section 3 "The program", page 11), comprising: generating different tree structures each having at least one node and at least one leaf (slicing tree in Fig. 2, section 3.2.1), wherein each node corresponds to a respective partition of the space and each leaf defines a relative location of a respective one of the objects on the page (print object); for each of the tree structures, characterizing a respective bounding box for each node in the tree structure (layout space reserved for a given tree), wherein each bounding box for each node includes all of the objects in any subtree below the respective node; and for each of the tree structures, assigning regions within the space for each node in the tree structure in accordance with the bounding box associated with the node (assigning layout regions for each objects) (Fig. 14, page 26), determining respective score for the tree structures, selecting tree structures based on the determined scores and producing a layout of the objects on the page based on the selected tree structure (section 3.2.1).

Goldenberg does not teach determining a respective score that comprises a measure of available space on the page that is unoccupied by the objects arranged on the page in accordance with partitions of the page defined by the tree structure. This feature is taught by Geigel. Geigel teaches a system for automatic layout of images similar to that of Goldenberg ([0009]). Geigel further teaches that determining a respective score that comprises a measure of available space on the page that is unoccupied by the objects arranged on the page in accordance with partitions of the page defined by the tree structure ([0086], [0146]). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Geigel's teaching in Goldenberg's system to enhance the efficiency in arranging layout based on the space availability of the page.

Regarding claims 8 and 15, Goldenberg teaches a method for producing a layout of objects (images) while maintaining aspect ratios on a page (layout print objects in a space, section 3 "The program", page 11), comprising: generating different tree structures each having at least one node and at least one leaf (slicing tree in Fig. 2, section 3.2.1), wherein each node corresponds to a respective partition of the space and each leaf defines a relative location of a respective one of the objects on the page (print object); for each of the tree structures, characterizing a respective bounding box for each node in the tree structure (layout space reserved for a given tree), wherein each bounding box for each node includes all of the objects in any subtree below the respective node; and for each of the tree structures, assigning regions within the space for

Art Unit: 2175

each node in the tree structure in accordance with the bounding box associated with the node (assigning layout regions for each objects) (Fig. 14, page 26), determining respective score for the tree structures, selecting tree structures based on the determined scores and producing a layout of the objects on the page based on the selected tree structure (section 3.2.1). Goldenberg does not teach for each of the nodes in the binary tree structure determining a respective aspect ratio and a respective area of a respective bounding box containing all bounding boxes respectively determined for all nodes and leaves branching from the node. This feature is taught by Geigel. Geigel teaches a system for automatic layout of images similar to that of Goldenberg ([0009]). Geigel further teaches for each of the nodes in the binary tree structure determining a respective aspect ratio and a respective area of a respective bounding box containing all bounding boxes respectively determined for all nodes and leaves branching from the node ([0117]-[0124], [0149]). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Geigel's teaching in Goldenberg's system to enhance the efficiency in layout arrangement.

Regarding claims 2, 9, and 16, Goldenberg teaches each object has a fixed aspect ratio and a relative area proportion associated therewith, and said characterizing comprises: establishing a relative area proportion and aspect ratio for each node as a function of relative area proportions and aspect ratios of children of the node (section 6.2 "Controlling the aspect ratio", section 6.2.2 "Incorporating the aspect ration into the area calculation").



Regarding claims 10 and 17, Goldenberg teaches adjusting relative area proportions of each of the respective bounding boxes determined for at least one child of each of the nodes so that corresponding dimensions of the bounding boxes respectively determined for the children are equal (section 6.2.3 “Allowing relaxation of the aspect ratio constraints”).

Regarding claims 4, 11, and 18, Goldenberg teaches determining right and left child relative area proportions and aspect ratios (section 6.2 “Controlling the aspect ratio”, section 6.2.2 “Incorporating the aspect ratio into the area calculation”); determining performance metrics for left and right children and comparing those performance metrics; and determining node relative area proportion and aspect ratio based on compared performance metrics and left and right child relative area proportions and aspect ratios (Fig. 1-2, 10-11).

Regarding claims 12 and 19, Goldenberg teaches determining right and left child relative area proportions and aspect ratios (section 6.2 “Controlling the aspect ratio”, section 6.2.2 “Incorporating the aspect ratio into the area calculation”); determining a factor for the node based on left and right child relative area proportions and aspect ratios; and multiplying relative area proportions for one child and all its children by the factor (section 6.3 “Grouping items together”).

Regarding claims 6, Goldenberg teaches comprising iteratively performing the generating, the characterizing, the assigning, the determining, and the selecting for each of the different tree structures in sequence (“The highest fitness score in every generation”) (section 3.3).

Regarding claim 13, Goldenberg teaches scoring the tree structure subsequent to said assigning (“scoring solutions”); generating a different tree structure; performing said characterizing and assigning for each node in the different tree structure; scoring the different tree structure; and passing one of the tree structure and different tree structure having a higher score (“The highest fitness score in every generation”) (section 3.3).

Regarding claim 20, Goldenberg teaches determining respective score for the tree structures, selecting tree structures based on the determined scores and producing a layout of the objects on the page based on the selected tree structure (section 3.2.1). Goldenberg does not teach determining a respective score that comprises a measure of available space on the page that is unoccupied by the objects arranged on the page in accordance with partitions of the page defined by the tree structure. This feature is taught by Geigel. Geigel teaches a system for automatic layout of images similar to that of Goldenberg ([0009]). Geigel further teaches that determining a respective score that comprises a measure of available space on the page that is unoccupied by the objects arranged on the page in accordance with partitions of the page defined by the tree structure ([0086], [0146]). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply Geigel’s teaching in Goldenberg’s system to enhance the efficiency in arranging layout based on the space availability of the page.

Regarding claims 7, 14, and 21, Goldenberg teaches reassigning objects to leaves within the tree structure after said characterizing and assigning, and

Art Unit: 2175

repeating said characterizing and assigning for the reassigned objects (Fig. 15 illustrates a reassignment of the same seven-module dataset as Fig. 14).

Applicant's arguments filed 11/29/07 have been fully considered.

9. Arguments with respects to independent claims 1, 8, 15 and their respective dependent claims are moot in view of new ground of rejection.

Arguments with respect to independent claim 3 and its dependent claim are not persuasive.

Applicant argues that Goldenberg does not teach the limitation "adjusting relative area proportions of at least one child of each node and all children thereof so that predetermined dimensions of the children are equal". Examiner respectfully disagrees. Goldenberg teaches at section 6.2.3 that the aspect ratio of layout can be adjusted. Goldenberg teaches at section 7.1 the capability of matching widths and heights of objects. As such, Goldenberg teaches the quoted limitation.

10. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**.

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory

Art Unit: 2175

action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kieu D. Vu. The examiner can normally be reached on Mon - Thu from 7:00AM to 3:00PM at 571-272-4057.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Bashore, can be reached at 571-272-4088.

The fax phone numbers for the organization where this application or proceeding is assigned are as follows:

571-273-8300

and / or:

571-273-4057 (use this FAX #, only after approval by Examiner, for "INFORMAL" or "DRAFT" communication. Examiners may request that a formal paper / amendment be faxed directly to them on occasions).

Art Unit: 2175

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kieu D Vu/  
Primary Examiner, Art Unit 2175